

**IN THE CLAIMS:**

1. (currently amended) In a G.709 network of connected integrated circuits, a method for paralleling data streams, the method comprising:

receiving a first digital wrapper data stream having a frame format, overhead bytes, and a first data rate;

demultiplexing the first data stream into a second plurality of digital wrapper data streams having a frame format, overhead bytes, and a second data rate, less than the first data rate, and synchronizing overhead bytes in the second plurality of data streams to overhead bytes in the first data stream; [[and,]]

processing the second plurality of data streams at the second data rate in response to synchronizing the overhead bytes;

supplying a second plurality of processed data streams as messages in a frame format having the second data rate, with overhead including a frame start signal and a frame alignment signal bytes;

comparing each of the second plurality of processed data stream frame start signals;

phase matching the second plurality of frame start signals;

deskewing the second plurality of processed data streams to match their corresponding frame start signals;

multiplexing the deskewed second plurality of data streams into a first processed data stream having the first data rate, by synchronizing frame alignment bytes in the first processed data stream to frame alignment bytes in the second plurality of processed data streams;  
and,

transmitting the first processed data stream as messages in a frame format with overhead bytes.

2-5. canceled

6. (previously presented) The method of claim 1 wherein receiving messages in a frame format with overhead bytes includes receiving frame alignment signal bytes in the overhead of every frame; and,

wherein synchronizing overhead bytes in the second plurality of data streams to overhead bytes in the first data stream includes synchronizing frame alignment signal bytes in each of the second plurality of data streams to the frame alignment signal bytes in the first data stream.

7-11. canceled

12. (currently amended) The method of claim [[2]] 1 wherein demultiplexing the first data stream into a second plurality of digital wrapper data streams includes demultiplexing into four data streams.

13. (original) The method of claim 12 wherein receiving a first digital wrapper data stream having a first data rate includes receiving the first data stream at approximately a 40-gigabits per second data rate; and,

wherein demultiplexing the first data stream into a second plurality of digital wrapper data streams having a second data rate, less than the first data rate, includes demultiplexing the approximately 40-gigabits per second data stream into 4 data streams having approximately a 10-gigabits per second rate.

14. canceled

15. (currently amended) In a G.709 network of connected integrated circuits, a system for paralleling data streams, the system comprising:

a demultiplexer with an input for receiving a first digital wrapper data stream having a frame format, overhead bytes, and a first data rate, the demultiplexer demultiplexing the first data stream into a second plurality of digital wrapper data streams each having a frame format, overhead bytes, and a second data rate, less than the first data rate, supplied at an output, the demultiplexer synchronizing overhead bytes in each of the second plurality of data streams to overhead bytes in the first data stream; [[and,]]

a second plurality of processors, each processor having an input to accept a corresponding one of the second plurality of data streams and an output to supply a processed data stream at the second data rate in a frame format with overhead bytes including a frame start signal and frame alignment signal bytes, wherein each processor has an input to receive a synchronization signal for processing one of the second plurality of data streams in response to the synchronized overhead bytes;

a multiplexer having an input to receive the second plurality of processed data streams, the multiplexer comparing each of the second plurality of received frame start signals, phase matching the frame start signals, deskewing the second plurality of processed data streams to match their corresponding frame start signals, and multiplexing the deskewed second plurality of processed data streams into a first digital wrapper processed data stream having the first data rate and a frame format with overhead bytes, by synchronizing frame alignment bytes in the first processed data stream to frame alignment bytes in the second plurality of processed data streams, the multiplexer supplying first processed data stream at an output for transmission.

16-19. canceled

20. (previously presented) The system of claim 15 wherein the demultiplexer receives frame alignment signal bytes in the overhead of every first data stream frame and synchronizes frame alignment signal bytes in each of the second plurality of data streams to the frame alignment signal bytes in the first data stream.

21-25. canceled

26. (currently amended) The system of [[16]] 15 wherein the second plurality is equal to four.

27. (currently amended) The system of claim ~~[[16]]~~ 15 wherein the first data rate is approximately 40-gigabits per second (Gbs) and the second data rate is approximately 10-gigabits per second.

28. canceled